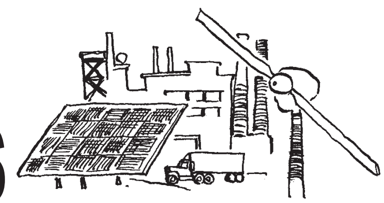
Renewables Portfolio Standards



EPA's State and Local Climate Change Program helps build awareness, expertise, and capacity to address the risk of climate change at the state and local levels. The program provides guidance and technical information to help state and local agencies prepare inventories of greenhouse gas emissions, develop action plans to reduce emissions, and educate their constituents. By emphasizing the many economic and environmental benefits of greenhouse gas reductions, the program encourages state and local decisionmakers to implement voluntary measures to reduce their greenhouse gas emissions.

Keeping Renewables in the Mix

A Renewables Portfolio Standard (RPS) is a policy that states may use to ensure that renewable power continues to play a role in the competitive environment that follows restructuring of the electricity generating industry. Increasing the use of renewable energy will help states reduce their greenhouse gas emissions.

Renewables Portfolio Standards specify a percentage of electricity generation that must come from renewable sources such as wind, solar, landfill gas, geothermal, and biomass. In its simplest form, an RPS mandates that a percentage of all electricity generated must come from specified renewable energy sources.

Under a more market-based approach, a state or group of states would allow the standard to be met with tradable renewable energy credits. Utilities and other electricity retailers would earn credits for all renewable-generated power they produce and sell each year, using those credits to demonstrate compliance with the standard. Utilities with excess credits could sell them to others that have not met the standard. Like the U.S. Environmental Protection Agency's sulfur dioxide allowance trading program, this approach should reduce the cost of compliance with the standard.

According to national scenario forecasts by the U.S. Energy Information Administration (EIA), Renewables Portfolio Standards may increase electricity prices somewhat. An RPS that requires retailers to generate 10 percent of all power with renewables by 2020 would add $2.63 to the average residential customer's projected monthly energy bill by the year 2020. But the average monthly energy bill still would be $4 less than it was in 1996, due to the effect of electricity restructuring. EIA estimates that a 10 percent RPS nationwide would cause U.S. CO_2 emissions from the generation of electricity to decline 10 percent by the year 2010.

Some analyses project a smaller effect on electricity prices. A study by the Union of Concerned Scientists found that a 20 percent RPS by 2020 would increase the share of electricity generated from renewable sources to about 10 times current levels over the next 20 years, while electricity prices would drop by 13 percent. The average monthly residential energy bill in 2020 would be $1.33 higher than without the RPS, but still about $4.50 less than today's costs. The RPS would freeze power plant emissions of CO_2 at approximately year 2000 levels.

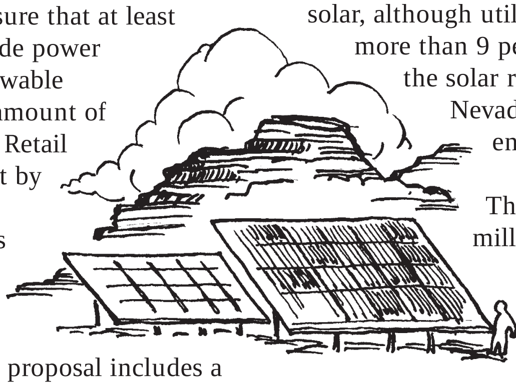
BENEFITS OF RENEWABLES PORTFOLIO STANDARDS

- Continued growth of renewable power generation after utility restructuring.
- Minor projected impact on electricity prices.
- Possible reduction of the cost of renewables through economies of scale.
- Uniform standards that apply equally to all sellers of electricity.
- Greater diversity in the electricity generation mix.
- Restraining the projected growth in natural gas prices.
- Opportunity to build a strong domestic renewable energy industry.
- Reduced emissions of greenhouse gases and conventional pollutants.

The Federal Role

The administration has proposed a Comprehensive Electricity Competition Act, a framework for legislation that would bring competition and consumer choice to the electricity industry, saving consumers roughly $20 billion a year while reducing pollution and greenhouse gas emissions. The administration's proposal includes a national Renewables Portfolio Standard. The RPS would ensure that at least 7.5 percent of all electricity sales include power generated from non-hydroelectric renewable sources by 2010, tripling the existing amount of energy from these sources nationwide. Retail sellers could meet the RPS requirement by generating renewable electricity themselves, purchasing tradable credits that would be created and tracked for each unit of renewable electricity produced, or some combination of the two strategies. The proposal includes a cost cap to limit the costs of complying with the standard. The RPS is expected to reduce greenhouse gas emissions by 40-60 million metric tons of carbon equivalent in 2010.

Several bills to establish RPSs and other programs to boost renewable energy use also have been proposed in Congress.



Examples of State Renewables Portfolio Standards

As of June 1999, seven states (Connecticut, Maine, Massachusetts, Nevada, New Jersey, Pennsylvania, and Texas) had created Renewables Portfolio Standards, and three (Iowa, Minnesota, and Wisconsin) enacted similar policies requiring utilities to provide specified levels of renewable-generated electricity. These minimum renewables requirements are estimated to lead to the development of more than 4,800 megawatts of new renewables and support nearly 3,500 megawatts of existing renewables by 2010. This is enough clean power to meet the entire electricity needs of 4.2 million homes. Furthermore, it would reduce greenhouse gas emissions by 3.6 million metric tons, equivalent to taking nearly 2.1 million cars off the road.

Massachusetts

Massachusetts' electric utility restructuring legislation, enacted in November 1997, established a Renewables Portfolio Standard as well as a surcharge placed on electricity to fund renewable energy projects. The standard for adding new renewables is scheduled to go into effect in 2003, with a requirement that 1 percent of all electricity sold to customers in Massachusetts must be generated by new renewable sources. This percentage equals approximately 440 gigawatt-hours per year, enough to power 44,154 average homes for one year, and will require an estimated 110 megawatts of new renewable capacity. (A gigawatt-hour is a billion watt-hours.)

The standard increases by 0.5 percent each year until the year 2009 when it will reach 4 percent—equivalent to 429 megawatts of new renewable capacity and 1,879 gigawatt-hours. After 2009, the standard will increase by 1 percent per year until it is capped by the state Division of Energy Resources.

The standard may be triggered earlier than 2003 if the price of any one renewable source of electricity comes within 10 percent of the spot market price for electricity.

Nevada

Nevada's Renewables Portfolio Standard, enacted in July 1997, requires regulated electric utilities and other sellers of electricity to generate two-tenths of 1 percent of their capacity with renewables by January 1, 2001, increasing gradually to 1 percent in 2008. The law requires that 50 percent of the renewable energy used to meet the standard must come from solar, although utilities that already use renewables to produce more than 9 percent of their electricity are exempt from the solar requirement until 2005.

Nevada imports more than 90 percent of its energy, and the RPS was created in part to increase indigenous energy production. The standard will result in more than 300 million kilowatt-hours per year of new renewable energy production, enough to provide the energy needs of 30,000 homes. The state estimates that by the year 2010, the standard will have created 500 jobs cumulatively, about $150 million in wage and state tax revenue, and 2 million tons of CO_2 reductions. A recent economic analysis prepared for the state by the Corporation for Solar Technology and Renewable Resources suggests that the standard would increase electricity rates by 0.3 percent, at most, for any customer.

Nevada's RPS may use a tradable credit system. Rules currently are being developed to implement the RPS.

For More Information

The text of the administration's proposed *Comprehensive Electricity Competition Act* may be viewed online.
Website: *http://home.doe.gov/policy/ceca.htm*

The *National Database of State Incentives for Renewable Energy* provides information on state financial and regulatory incentives that are designed to promote the use of renewable energy.
Website: *http://www-solar.mck.ncsu.edu/dsire.htm*

The *Interstate Renewable Energy Council* works to accelerate the sustainable use of renewable energy sources and technologies.
Tel: 518-458-6059
Website: *http://www.eren.doe.gov/irec/*

The U.S. Energy Information Administration's table on *The Status of State Electric Utility Deregulation Activity* is available online at:
Website: *www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html*

Two reports by the Union of Concerned Scientists, entitled *Power Solutions: Seven Ways to Switch America to Renewable Electricity* and *A Powerful Opportunity: Making Renewable Electricity the Standard*, include information on state and federal renewable energy policies. The reports are available online.
Website: *http://www.ucsusa.org/energy/*

EPA's *State and Local Climate Change Program* helps states and communities reduce emissions of greenhouse gases in a cost-effective manner while addressing other environmental problems.
Website: *http://www.epa.gov/globalwarming/ and click on "Public Decision Makers" under the "Visitors Center."*